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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/752,700

01/08/2004

Kazuyuki Kuwada

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EXAMINER

SUCH, MATTHEW W

ART UNIT

PAPER NUMBER

2891

MAIL DATE

DELIVERY MODE

03/27/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/752,700	Applicant(s) KUWADA ET AL.	
	Examiner Matthew W. Such	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 3-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 6 December 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent No. 6,023,096 to Hotta has been reviewed and is accepted. The terminal disclaimer has been recorded.

Drawings

2. The amendment filed 6 December 2007 including the drawings and specification is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The newly added amendments to the specification and drawings comprise new matter because the originally filed disclosure did not describe the subject matter with sufficient specificity such that it reasonably supports the amendment.

For example, the newly submitted drawing shows a round that "a back" of the semiconductor element is a different surface than the bump bonding part surface while the originally filed disclosure does not set forth such a relationship between elements.

The drawing also shows a plurality of bump bonding parts while the originally filed disclosure does not set forth that a plurality of bump bondings can be used.

The drawing shows that the thermosetting material is in direct physical contact with the substrate, while the originally filed disclosure does not set forth that the thermosetting material has such a relationship with the substrate.

The drawing also shows that the "edges" of the semiconductor element are distinct surfaces from a "back" of the semiconductor element, while the specification does not describe with sufficient specificity that the edges and back must be distinctive surfaces instead of, for example, the edge of a back surface or the apex of a corner portion.

These are not the only examples in which new matter was introduced into the disclosure, but illustrates the point.

Applicant is required to cancel the new matter in the reply to this Office Action.

3. Since the new drawing sheet introduces new matter into the disclosure and is not entered, the drawings remained objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first matrix material and second matrix material must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "tackiness" in claim 1 is a relative term which renders the claim indefinite. The term tackiness is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. All materials have some level of "tackiness" simply because they are capable of being measured with a tack test, such as the ball tack test.

6. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim requires that the tackiness of the sheet material before thermosetting is 2 to 15 in terms of ball tack. However, no units are specified in the claim. The ball tack test

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measures and reports the distance of the ball from the endpoint of the tack apparatus. Therefore, any units can be used for the numbers 2 to 15, such as centimeters, or millimeters, or inches, or feet or any arbitrary or proprietary units. Therefore, no matter what the material, the units can be arbitrarily set to yield a ball tack value of 2 simply by choosing a unit length that fits to the ball tack being from 2 to 15. Therefore any thermosetting material meets the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. In so far as definite, claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto (404). Yamamoto teaches a semiconductor device and method of producing the semiconductor device comprising a substrate (Element 4; Fig. 6, for example) and a semiconductor element (Element 6; Fig. 6, for example) mounted thereon through a bump bonding part (Element 9; Fig. 6, for example). The semiconductor element has been encapsulated by coating a back and edges with a thermosetting rubber-containing material (Para. 0075, 0078, 0147; Element 3; Fig. 6, for example). Regarding the recitation of “tackiness”, since all materials have some level of “tackiness” simply because they are capable of being measured with a tack test, such as the ball tack test, any material, such as the thermosetting rubber-

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containing material of Yamamoto meets the claim. Furthermore, Yamamoto teaches that the material inherently has tackiness (see Para. 0075 and 0078, for example).

9. In so far as definite, claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hotta ('096). Hotta teaches a semiconductor device and method of producing the semiconductor device comprising a substrate (Element 2) and a semiconductor element (Element 1) mounted thereon through a bump bonding part (Element 3). The semiconductor element has been encapsulated by coating a back and edges with a thermosetting rubber-containing material (Col. 5, Lines 54-65; Col. 6, Lines 10-13; Element 41). Regarding the recitation of "tackiness", since all materials have some level of "tackiness" simply because they are capable of being measured with a tack test, such as the ball tack test, any material, such as the thermosetting rubber-containing material of Hotta meets the claim.

10. In so far as definite, claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Misumi ('484). Misumi teaches a semiconductor device and method of producing the semiconductor device comprising a substrate (Element 1) and a semiconductor element (Element 5) mounted thereon through a bump bonding part (Element 3). The semiconductor element has been encapsulated by coating a back and edges with a thermosetting rubber-containing material (Abstract; Col. 2, Lines 34-67; Col. 3, Lines 1-20; Element 4). Regarding the recitation of "tackiness", since all materials have some level of "tackiness" simply because they are capable of being measured with a tack test, such as the ball tack test, any material, such as the thermosetting rubber-containing material of Misumi meets the claim.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. In so far as definite, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto ('404) in view of Komoto ('409).

Yamamoto teaches that the thermosetting material is a rubber containing material, but does not teach that the thermosetting material is a rubber-modified polycarbodiimide resin.

Komoto teaches using rubber-modified polycarbodiimide resin (Abstract; Col. 5, Lines 48-53, for example) used for electronics applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a rubber-modified polycarbodiimide thermosetting material as taught by Komoto in the thermosetting material of Yamamoto. One would have been motivated to do so since Komoto teaches that the rubber-modified polycarbodiimide thermosetting material is an excellent adhesive material for electronics applications due to the flame-retarding heat-resistance and solder-resistance properties (Komoto Col. 3, Lines 25-40; Col. 6, Lines 8-21; Col. 10, Lines 1-5; Col. 11, Lines 38-41; Col. 12, Lines 10-12; Col. 13, Line 12, for example).

13. In so far as definite, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto ('404) in view of Imashiro ('711).

Yamamoto teaches that the thermosetting material is a rubber containing material, but does not teach that the thermosetting material is a rubber-modified polycarbodiimide resin.

Imashiro teaches using rubber-modified polycarbodiimide resin (Abstract; Col. 1, Line 13; Col. 2, Lines 45-55; Col. 5, Lines 10-17, for example) used for electronics applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a rubber-modified polycarbodiimide thermosetting material as taught by Imashiro in the thermosetting material of Yamamoto. One would have been motivated to do so since Imashiro teaches that the rubber-modified polycarbodiimide thermosetting material is an excellent adhesive material for electronics applications due to the heat-resistance, formability, excellent adhesion strength, processability, and solder-resistance properties (Imashiro Table 2, for example).

14. In so far as definite, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hotta ('096) in view of Komoto ('409).

Hotta teaches that the thermosetting material is a rubber containing material, but does not teach that the thermosetting material is a polycarbodiimide resin, which can have filler materials, for example (Col. 5, Lines 60-65).

Komoto teaches using rubber-modified polycarbodiimide resin (Abstract; Col. 5, Lines 48-53, for example) used for electronics applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a rubber-modified polycarbodiimide thermosetting material as taught by Komoto in the thermosetting material of Hotta. One would have been motivated to do so since Komoto teaches that the rubber-modified

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polycarbodiimide thermosetting material is an excellent adhesive material for electronics applications due to the flame-retarding heat-resistance and solder-resistance properties (Komoto Col. 3, Lines 25-40; Col. 6, Lines 8-21; Col. 10, Lines 1-5; Col. 11, Lines 38-41; Col. 12, Lines 10-12; Col. 13, Line 12, for example).

15. In so far as definite, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hotta ('096) in view of Imashiro ('711).

Hotta teaches that the thermosetting material is a rubber containing material, but does not teach that the thermosetting material is a polycarbodiimide resin, which can have filler materials, for example (Col. 5, Lines 60-65).

Imashiro teaches using rubber-modified polycarbodiimide resin (Abstract; Col. 1, Line 13; Col. 2, Lines 45-55; Col. 5, Lines 10-17, for example) used for electronics applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a rubber-modified polycarbodiimide thermosetting material as taught by Imashiro in the thermosetting material of Hotta. One would have been motivated to do so since Imashiro teaches that the rubber-modified polycarbodiimide thermosetting material is an excellent adhesive material for electronics applications due to the heat-resistance, formability, excellent adhesion strength, processability, and solder-resistance properties (Imashiro Table 2, for example).

16. In so far as definite, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Misumi ('484) in view of Komoto ('409).

Misumi teaches that the thermosetting material is a rubber containing material, but does not teach that the thermosetting material is a polycarbodiimide resin (Abstract, for example).

Komoto teaches using rubber-modified polycarbodiimide resin (Abstract; Col. 5, Lines 48-53, for example) used for electronics applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a rubber-modified polycarbodiimide thermosetting material as taught by Komoto in the thermosetting material of Hotta. One would have been motivated to do so since Komoto teaches that the rubber-modified polycarbodiimide thermosetting material is an excellent adhesive material for electronics applications due to the flame-retarding heat-resistance and solder-resistance properties (Komoto Col. 3, Lines 25-40; Col. 6, Lines 8-21; Col. 10, Lines 1-5; Col. 11, Lines 38-41; Col. 12, Lines 10-12; Col. 13, Line 12, for example).

17. In so far as definite, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Misumi ('484) in view of Imashiro ('711).

Misumi teaches that the thermosetting material is a rubber containing material, but does not teach that the thermosetting material is a polycarbodiimide resin (Abstract, for example).

Imashiro teaches using rubber-modified polycarbodiimide resin (Abstract; Col. 1, Line 13; Col. 2, Lines 45-55; Col. 5, Lines 10-17, for example) used for electronics applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a rubber-modified polycarbodiimide thermosetting material as taught by Imashiro in the thermosetting material of Hotta. One would have been motivated to do so since Imashiro teaches that the rubber-modified polycarbodiimide thermosetting material is an excellent adhesive

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material for electronics applications due to the heat-resistance, formability, excellent adhesion strength, processability, and solder-resistance properties (Imashiro Table 2, for example).

18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto ('404) in view of Nishikawa ('465).

Yamamoto teaches a tacky material for use as the thermosetting rubber-containing material, but does not teach that the ball tack is from 2 to 15.

Nishikawa teaches materials useful for use with semiconductor devices (Col. 9, Lines 23-24) wherein the tackiness level measured by ball tack is between 2 to 15 (Table in Cols. 15 and 16, for example). Nishikawa further teaches that pressure sensitive ball tackiness should be set depending on the desired application (Col. 16, Lines 3-24, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the tackiness of the thermosetting resin material prior to the cure of Yamamoto to a value between 2 to 15 as taught by Nishikawa in order to ensure sufficiently without peeling (Nishikawa Col. 16, Lines 13-15, for example). It has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hotta ('096) in view of Nishikawa ('465).

Hotta teaches a tacky material for use as the thermosetting rubber-containing material, but does not teach that the ball tack is from 2 to 15.

Nishikawa teaches materials useful for use with semiconductor devices (Col. 9, Lines 23-24) wherein the tackiness level measured by ball tack is between 2 to 15 (Table in Cols. 15 and 16, for example). Nishikawa further teaches that pressure sensitive ball tackiness should be set depending on the desired application (Col. 16, Lines 3-24, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the tackiness of the thermosetting resin material prior to the cure of Hotta to a value between 2 to 15 as taught by Nishikawa in order to ensure sufficiently without peeling (Nishikawa Col. 16, Lines 13-15, for example). It has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

20. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Misumi ('484) in view of Nishikawa ('465).

Misumi teaches a tacky material for use as the thermosetting rubber-containing material, but does not teach that the ball tack is from 2 to 15.

Nishikawa teaches materials useful for use with semiconductor devices (Col. 9, Lines 23-24) wherein the tackiness level measured by ball tack is between 2 to 15 (Table in Cols. 15 and 16, for example). Nishikawa further teaches that pressure sensitive ball tackiness should be set depending on the desired application (Col. 16, Lines 3-24, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the tackiness of the thermosetting resin material prior to the cure of Misumi to a value between 2 to 15 as taught by Nishikawa in order to ensure sufficiently without peeling (Nishikawa Col. 16, Lines

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13-15, for example). It has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Response to Arguments

21. Applicant's arguments filed 6 December 2007 have been fully considered but they are not persuasive.

22. Regarding the rejection of claims 1-2 and 7 under 35 U.S.C. 112, first paragraph: The Applicant argues that the term "tackiness" and "ball tack" are definite because they can be determined by a ball rolling method as provided for in JIS Z-0237 and that the number reported is determined by the ball number. The applicant also argues that since a "ball number" is reported that no units are required.

However, both of these arguments are not persuasive because the claims merely use the term "tackiness" and "ball tack", which do not limit these values to the JIS Z-0237 test. There are a many "ball tack" tests used for determining this property such as ASTM D3121, BS EN 1721, and PSTC 6, each of which report a value with distance units (see for example, Roberts, R.A., "Project PAJ1: Failure Criteria and Their Applicant to Visco-Elastic/Visco-Plastic Materials, Report 5" which is provided to the Applicant in this office action). It is further noted that the features upon which applicant relies (i.e., JIS Z-0237 is as the "ball tack" method) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, reliance on a "ball number" (see Applicant Remarks page 9), if read into the claims, would still render the claims indefinite because the claim still fails to provide a unit for the ball diameter. A reference to a "ball number", if read into the claims, would also render the claim indefinite because the "ball number" appears to be an arbitrary number assigned to a ball of an arbitrary diameter, which can be changed if such a revision was made when assigning a ball number to a specific ball diameter. Therefore, the recitation of the terms "tackiness" and "ball tack" and the lack of units recited in the claim do not provide any requisite degree by which the one of ordinary skill in the art would be reasonably apprised of the scope of the invention.

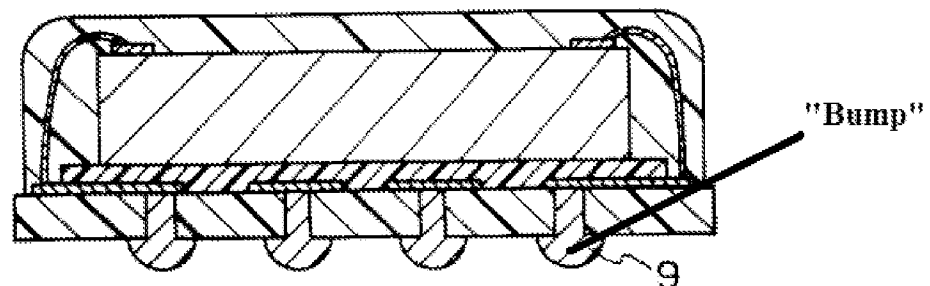
Finally, the Applicant has not provided the Office with the reference of JIS Z-0237, so all arguments regarding this citation cannot be fully evaluated on the merits. As such, these arguments are not persuasive.

The Applicant also disagrees with the Examiner's position that all materials have some level of tackiness by asserting that "it is clearly understood by those of ordinary skill in the art that there are some films that have no tackiness". However, the Examiner notes that the Applicant has provided no evidence which support this conclusion. Furthermore, even if the Applicant was to provide evidence that some material has "no tackiness" when measured by some method, the Examiner notes that does not necessarily provide evidence that the material actually has "no tackiness". This sort of evidence would merely illustrate that the conditions under which the tackiness of the material is measured was not sensitive to the level of tackiness in the material and would show that the material is completely devoid of tackiness.

The Examiner also notes that a recitation of "wherein the tackiness of the sheet material before thermosetting is..." is ambiguous because it is not clear as to whether the sheet material actually even has the "tackiness" recited by the Applicant. This is because the claim merely recites that a "tackiness" that occurs "before thermosetting" and it is unclear as to the sheet material has been thermoset or not.

23. Regarding the rejection of claims 1-2 under 35 U.S.C. 102(b) as anticipated by Yamamoto ('404): The Applicant argues that Yamamoto does not show a semiconductor device bonding to a substrate through a bump bonding part (see Applicant Remarks page 12). This is not persuasive for at least the following reasons. Firstly, Yamamoto clearly shows a "bump bonding part" (Element 9) which mount the semiconductor element (Element 6) to a substrate (Element 4). The Applicant's asserts that Element 9 of Yamamoto is a "wiring" (see Remarks Page 12) is not persuasive because each of the terms of "bump bonding part" is not claimed with sufficient specificity to distinguish a "bump bonding part" from Element 9 of Yamamoto. Element 9 of Yamamoto is a "part" because it exists, it has a "bump" (as shown below) and "bonds" because it is attached.

FIG. 6F



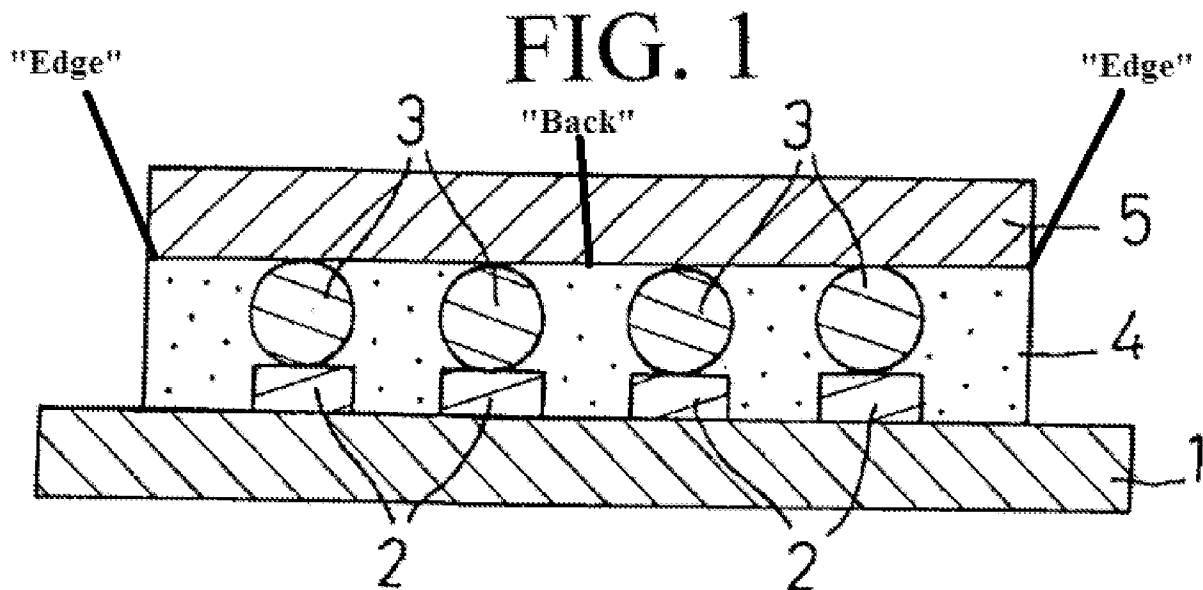
The Applicant argues that "the encapsulating material of Yamamoto '404 is described as a liquid encapsulating material, e.g. at paragraph [0145], not a sheet material as recited in the

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present claim 1" (see Remarks Page 12). In response, the Examiner notes that the only place in Paragraph [0145] of Yamamoto which recites "a liquid encapsulating material" is directed towards Element 8 of Yamamoto, which was never even cited anywhere in the Office Action. As such, this argument is not commensurate with the scope of the rejection and is not persuasive.

24. Regarding the rejection of claims 1-2 under 35 U.S.C. 102(b) as anticipated by Hotta ('096): The Applicant argues that the prior art reference of Hotta does not anticipate the claims because "there is no description about encapsulation with a sheet having tackiness". This is not persuasive for at least the following reasons. Firstly, the claim does not distinguish what structural features of the recitation of "sheet" to distinguish the claim from the prior art of Hotta. Since the element of Hotta is a long and thin feature, it must be a "sheet". Hotta even refers to the element as a "sheet" (see Col. 5, Lines 65-66, for example). Furthermore, the material of Hotta has "high adhesion" and therefore must have some level of tackiness since tackiness is merely a measure of adhesiveness.

25. Regarding the rejection of claims 1-2 under 35 U.S.C. 102(b) as anticipated by Misumi ('484): The Applicant argues that Misumi does not anticipate the claims because the semiconductor element is not "encapsulated". However, this is not persuasive for at least the following reasons. The manner in which the claim is written does not limit exactly how the semiconductor element is "encapsulated" to distinguish from the prior art of Misumi. For example, Misumi shows the semiconductor element is "encapsulated" across the entire back surface and edges of the semiconductor element (see attached Figure for example).



26. Regarding the rejection of claims under 35 U.S.C. 103(a): All of the Applicant's arguments are directed to the subject matter of claims 1 and 2 (see Remarks pages 15-19), and the arguments do not address the rejection of claims 6 and 7 under 35 U.S.C. 103(a). As such, none of the arguments are commensurate the rejections set forth in the Office Action since all rejections made under 35 U.S.C. 103(a) are directed to claims 6 and 7.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- i. Roberts, R.A., "Project PAJ1: Failure Criteria and Their Applicant to Visco-Elastic/Visco-Plastic Materials, Report 5" teaches the basics conventional "ball tack" tests;

- ii. Yamazaki ('614) and Yamazaki ('093) each teach using rubber-containing thermosetting resins with tackiness in a semiconductor device with a substrate.

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is (571) 272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such
Examiner, Art Unit 2891

MWS
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